MAX HOWARD SHERMAN

MS 90-3074
Lawrence Berkeley National Laboratory
Berkeley CA 94720
(510) 486-4022

5868 Chabot Ct.
Oakland CA 94618

Education

B.S. Physics, University of California, Los Angeles, 1975, cum laude

B.S. Chemistry, University of California, Los Angeles, 1975, cum laude

Ph.D. Physics, University of California, Berkeley, 1980. *Air Infiltration in Buildings*.

Employment

University of California, Berkeley (UCB)

1976-1977:Teaching Assistant, Physics Dept:

Taught self-paced physics courses for both majors and non-majors and freshman physics laboratory.

1977-1980: LBNL Graduate Student Research Associate; Arthur H. Rosenfeld, Advisor:

Primary research focussed on air infiltration in buildings including both experimental and theoretical development. Assisted in development of Computerized Residential Integrated Audit (CIRA) program.

Lawrence Berkeley National Laboratory (LBNL), Energy and Environment Division

1980-present: LBNL Scientist (1980-1985 SS II; 1985-1994 SS III; 1994-present Senior Scientist):

Simplified Physical Modeling: Conduct research on the development, validation and application of simplified physical models including ventilation modeling for single-zone buildings (i.e. the LBNL infiltration model), Simplified Thermal Parameters (STPs) for characterization of heat flux through solids, hydrodynamics of leaks (i.e. developing laminar flow), thermal distribution systems (e.g. ducts) and human thermal comfort.

Development of Novel Measurement Techniques: Conduct research on the development and testing of instrumentation to support modeling and characterization efforts as well as to supply the technical community with usable measurement techniques. Significant efforts have been successfully completed in the following areas: tracer-gas techniques for determination of air change rate in uncontrolled environments (both single-gas and multiple-gas configurations); the development of the Envelope ThermalTest Unit (ETTU) for in-situ measurement of dynamic thermal properties; and advanced air leakage devices (such as the invention of AC pressurization and Pulse Pressurization) as well as single and multiple blower-door systems. Application of whole-house measurement techniques to duct leakage and thermal distribution systems.

Data Collection and Analysis: Conduct research on and projects for the acquisition and analysis of field measurements of building properties. Acquisition efforts require instrumentation development, experimental design, and field data collection and reduction. Analysis efforts require using statistical and simplified modeling methods to extract information on energy and air quality properties of building stock. Completed research projects include the following: the creation and analysis of a database of house leakage measurements, a survey of in-situ residential appliance efficiency, an analysis of both detailed and large-scale tracer data, and the characterization of energy and ventilation properties of U.S. housing stock. Measurement of residential thermal distribution characteristics of California houses

with emphasis on peak loads and annual energy consumption..

Technology Transfer: Specific efforts are undertaken to transfer research results to appropriate user groups-often through interactions with the professional groups. Results of modeling have been incorporated into the state of the art procedures (e.g. *ASHRAE Handbook);* results of instrumentation development have been used directly by technical groups and are incorporated into test methods (e.g. ASTM Standards); and results of characterization efforts have been incorporated into policy and program design. Integrated efforts have resulted in improved standards (e.g. in ASHRAE). Applications of models and diagnostics are transferred to federal, state, and local program for the improvement of building operation.

Employment (Continued)

1983-present: Group Leader, Energy Performance of Buildings Group (EPB):

Personnel Management: Responsibilities include supervision of all EPB staff (15-20) including direct supervision of all Scientists and Engineers (4), as well as oversight of postdocs, graduate students and student assistants, and management of international Visiting Researchers (averaging over two full time equivalent positions annually). Specific responsibilities include research assignments, employee evaluation, and employee advancement (both reclassifications and scientist development into principal investigator).

Fiscal Management: Responsibilities include the management of the annual group budget (in the range of $1-2 M comprising up to 25 different funded projects), group planning and forecasting, management of group resources to achieve project goals and schedules, and quality assurance for all applicable policies and procedures.

California Institute for Energy Efficiency (CIEE*)

1988-present: Member of senior management team:

Participated in overall planning for (a $4 M) institution both from its inception and currently, including mission, scope, allocation of resources, criteria for projects, operations, technology transfer, etc.

1990-1993: Manager of Building Energy Efficiency Program:

Managed a planned ($1.5 M) research program to improve the energy efficiency of buildings using University research capabilities: allocated resources; managed contracts; prepared project plans; evaluated results; and transferred successful project results.

1990-1993: Manager of Exploratory Research Program:

Managed peer-reviewed program for (approximately 10) seed research projects: managed research contracts; planned future programs; and transferred successful project results.

1993-1994: Director of Communications:

Manage information dissemination projects. Supervise communications staff. Oversee production of annual report, multiyear plan, and conference proceedings.

1995-present: Advisor:

Assist CIEE in creating working links between the University, Department of Energy, State agencies such as the California Energy Commission and California Public Utilities Commission. Advise CIEE on technical issues and quality assurance aspects of research effort. Work with stakeholders during the transition caused by Electric Utility Restructuring.

Awards and Honors

Westinghouse Science Talent Search, Honorable Mention, 1969

* CIEE is part of an organized research unit of the University of California funded by the electric and gas utilities of the State and administratively operated by LBNL in cooperation with DOE under a Cooperative Research and Development Agreement (CRADA).

Engineering Award of Merit, 1970

UCLA Honors Society, 1972-1975

Elected ΣΠΣ (National Physics Honors Society), 1973

Dean's Honor Roll, 1974-1975

Elected to *Who's Who*, 1985+ (multiple volumes).

Fulbright Distinguished Scholar Nominee, 1987, 1988

Certificate of Appreciation, American Society of Heating, Refrigerating and Air-conditioning Engineers *ASHRAE*), 1988, 1989, 1992, 1993

LBNL Technology Transfer Award, 1989

Best Paper Award, 14th Air Infiltration and Ventilation Centre Conference, 1993

Elected ASHRAE Fellow, 1994

ASHRAE Distinguished Service Award 1997

Professional Service

American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE)

Member, speaker, technical committee member, session chairman since 1980

Chairman of Technical Committees:

Air Flow Around Buildings (TC2.5), 1986-1988

Infiltration and Ventilation Requirements (TC4.3), 1991-1993

Standard Project Committees:

Air Tightness Requirements for Detached Single-Family Residential Buildings (SPC 119); Chairman, 1985-1989

Ventilation for Acceptable Indoor Air Quality (SSPC 62); member, 1992-present

Chairman Residential Ventilation (62.2), 1997-present

Society- and Board-level Committees:

Presidential Committee on Innovative Research Ideas; member, 1988-1991.

Standards Committee, 1991-1993, 1994-1996

- Chairman, 1995/1996

Program Committee, 1993-1994

Handbook Committee 1996-1997

Technology Council 1997-2000

Finance Committee 2000-2002

American Society of Testing and Materials (ASTM)

Committee Membership, 1981-present:

Duties include speaker, session chair, reviewer, and task group chairman

- Thermal Properties (C16)
- Building Construction (E6)

Standards Task Groups:

Fan Pressurization Measurement (E779 and supporting standards)

Air Change Measurement Using Tracer Gases (E741)

Other standards related to Infiltration Performance (E6.41)

Symposium Chair and Editor of Special Technical Publication, 1989

Professional Service
(Continued)

American Council for an Energy-Efficient Economy (ACEEE)

Co-Chair of 1994 Summer Study on Energy Efficiency in Buildings:

The Summer Study is one of the most influential conferences on energy efficiency in the buildings sector in the world. Over 700 people attend for a week; over 300 papers are presented and published. The responsibilities as o-chair are to design the technical program and assure it is carried out properly, to assure the high quality of the refereed papers, and to oversee the logistical support and arrangement staff.

Publications

Service as a reviewer on ACEEE publications and proceedings.

Editor of (10-volume series of) conference proceedings from 1994 Summer Study.

Assistance in planning for future publications.

International Energy Agency (Buildings and Community Systems)

Annex V, Air Infiltration and Ventilation Centre (AIVC), 1980-present:

U.S. Representative to Steering Group, 1982-present

Chairman of Steering Group, 1989,1990; 1995-present

Host of AIVC Annual Conference, 1984, 1995

Guest researcher, AIVC, September 1985

Advisor to Annex XI on Energy Audits, 1985

Advisor to Annex XXIII, on Airflow Modeling, 1990-present

Advisor to Annex XXVII on Residential Ventilation Systems, 1992-present

International Standards Organization

US Representative to TC163/SC1 Standards for the Measurement of Air Tightness and Ventilation, 1988-1992

Other Professional Memberships

American Association for the Advancement of Science (AAAS)

American Physical Society (APS)

Services as a Reviewer *(Partial List)*

Archival Journals and Books:

Energy and Buildings

ASHRAE Transactions and *ASHRAE Journal*

Building and Environment

Indoor Air

ASTM Books including Special Technical Publications (STP)

Other Publications:

Home Energy

Technical reports of the International Energy Agency (IEA)